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REMARKS

This amendment is responsive to the office action dated March 31, 2005.

Claims 1-15 were pending in the application. Claims 1-15 were rejected. No claims were allowed.

Claims 1-15 remain unchanged as the Applicant offers the following remarks in support of their allowability.

Accordingly, Claims 1-15 are currently pending.

I. Rejection of Claims 1-3 and 7 under 35 USC 103

Claims 1-3 and 7 were rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,541,800 (Barnett) in view of Luxeon Power Light Sources Literature. The Examiner has stated that Barnett discloses a lighting assembly including a light emitting diode package, a mounting device and a lens and that although Barnett does not teach the LED having a heat transfer plate on the rear of the mounting base and the mounting device in thermal communication with the heat transfer plate, Luxeon teaches an aluminum circuit board assembly and the use of a supplemental heat sink.

In applying the cited reference, the distinct and separately claimed elements of the present invention have been blurred and discrete elements regarding either the heat sink and/or the LED package have been transposed in order to apply the rejection. The claims of the present invention require three separate and distinct sub-assemblies. The first sub-assembly is an LED package. This LED package, which may be a Luxeon emitter, includes a mounting base with a front luminescent portion and a heat transfer plate on the rear thereof. The second sub-assembly is a heat sink. The heat sink includes an alignment guide for receiving and aligning the LED package as well as providing heat transfer capacity. The third sub-assembly is a separate and distinct lens that is placed in front of and in addition to the luminescent portion of the LED package.

The primary reference, Barnett has no disclosure at all related to heat transfer from the disclosed LED package. The structures illustrated in Fig. 1B of the Barnett

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reference show a completed LED package 10 that is installed into a socket assembly for mounting the LED package onto a circuit board. There is simply no disclosure relative to dissipation of heat. Additionally, the only optical element discussed in Barnett is the front luminescent portion of the LED. There is no provision for a secondary optical element that is utilized in conjunction with the luminescent portion of the LED package.

Further, while Luxeon discloses the heat transfer plate and the incorporation of a printed circuit board that acts as a thermal heat sink interface, this interface is not a heat sink. The Luxeon literature as provided by the Examiner specifically states that the printed circuit board is not a heat sink and that in order to light the LED, for more than a few seconds, an additional heat sinking means must be provided. While Luxeon provides a high powered LED package, they fully admit that the LED does not include adequate means for dissipating heat, yet do not provide any solution other than a statement that additional heat sinking is required. Therefore even if these two references are combined they are lacking in any disclosure that is directed to any of the claimed limitations regarding the heat sink assembly having an interior die that includes alignment means for receiving the LED package and simultaneously aligning the LED with the heat sink assembly. Simply looking at the figures of the Barnett reference without reading the disclosure is not sufficient to maintain this rejection. While Barnett shows a port for receiving the cathode of the LED there is no disclosure relative to a heat sink assembly or that allows any of the structure behind the LED cup to function as a heat sink. Simply combining the Luxeon reference with the Barnett reference would result in the heat transfer plate on the rear of the Luxeon emitter to be received in a position adjacent the cathode receptacle 60. In this configuration, no additional heat sink capacity is provided and the Luxeon assembly would fail after a few seconds of illumination.

Further, while both the Luxeon reference and the Barnett reference refer to the front luminescent portion of the LED package as a lens, the present invention adds the further limitation that in addition to the front lens of the LED package, a secondary lens is provided. There is simply no disclosure in either of the cited references regarding the inclusion of a secondary lens.

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Since the present invention clearly discloses subject matter that is not found within either of the cited references Barnett or Luxeon either alone or in combination, the cited references cannot render the present invention obvious. Clearly, the combination for the cited references is lacking in disclosure regarding a secondary lens and the provision of a heat sink that itself includes an alignment means for receiving and aligning the LED package. Further, should the two references be combined without the addition of the auxiliary heat sink capacity of the present invention, the device would fail.

Applicant again emphasizes that "care must be taken to avoid hindsight reconstruction by using the patent in suit as a guide through the maze of prior references, combining the right reference in the right way so as to achieve the result of the claims in suit." Grain Processing Corp. v. American Maize-Products Corp., 5 USPQ2d 1788 (Fed. Circ. 1988). The Applicant submits that the determination of obviousness is not based on the fact that the pictures might appear similar if the function and construction of the various elements that are depicted in the pictures is entirely different. It is the disclosure within the specification that must be utilized to determine the scope of that which is depicted in the figures. It is for this reason, the Applicant asserts that the Examiner has used improper hindsight in reconstructing the invention. To give a skilled artisan each of the cited references alone, without also giving him the particular problem to be solved, i.e. the problem of providing an assembly that includes an LED package, an optical lens and additional heat sink capacity, wherein the heat sink assembly itself includes the required alignment means disclosed in the claims of the present application, would not provide any motivation to combine the features to result in the claimed invention. While the cited prior art references may teach a mounting bracket for an LED package and an LED package that is not functional without a heat sink solution, both of the cited references are completely devoid of teaching the combination of the three critical claimed elements of the present invention. The Appellant asserts that the combination of the references relied upon by the Examiner cannot be maintained under §103 because the references are devoid of any teachings relative to their combinability. Further, even if one skilled in the art attempted to combine these

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references *sua sponte*, the resulting assembly simply would not teach the claimed limitations of the present invention

Accordingly, in view of the fact the claim 1 of the present invention is believed to be allowable over the cited prior art references, the respective dependant claims are also believed to be allowable.

II. Rejection of Claim 4 under 35 USC 103

Claim 4 was rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,541,800 (Barnett) in view of Luxeon Power Light Sources Literature in further view of admitted prior art. The Examiner stated that Barnett and Luxeon disclose the present invention except for a circuit board including control circuitry and that therefore the present invention would be obvious.

As stated above however with regard to Barnet and Luxeon, this combination is lacking in critical structural limitations that are in the present invention as claimed. Specifically, since the base combination is lacking in the necessary auxiliary heat sink capacity with alignment means for receiving and aligning the LED package and the provision of a secondary lens. Accordingly, this rejection cannot be maintained. Withdrawal of the rejection is respectfully requested.

III. Rejection of Claim 5 under 35 USC 103

Claim 4 was rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,541,800 (Barnett) in view of Luxeon Power Light Sources Literature in further view of US Patent No. 6,582,100 (Hochstein). The Examiner stated that Barnett and Luxeon disclose the present invention except for a the first LED lead in contact with the mounting die and the second LED lead in contact with the control circuitry and that

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Hochstein provides disclosure relative to the LED connectivity and that therefore the present invention would be obvious.

As stated above however with regard to Barnet and Luxeon, this combination is lacking in critical structural limitations that are in the present invention as claimed. Specifically, since the base combination is lacking in the necessary auxiliary heat sink capacity with alignment means for receiving and aligning the LED package and the provision of a secondary lens. Accordingly, this rejection cannot be maintained. Withdrawal of the rejection is respectfully requested.

IV. Rejection of Claim 6 under 35 USC 103

Claim 6 was rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,541,800 (Barnett) in view of Luxeon Power Light Sources Literature in further view of US Patent No. 6,547,423 (Marshall). The Examiner stated that Barnett and Luxeon disclose the present invention except for lens having a total internal reflection collector portion and that Marshall provided disclosure relating to this optical lens and that therefore the present invention would be obvious.

As stated above however with regard to Barnet and Luxeon, this combination is lacking in critical structural limitations that are in the present invention as claimed. Specifically, since the base combination is lacking in the necessary auxiliary heat sink capacity with alignment means for receiving and aligning the LED package and the provision of a secondary lens. Accordingly, this rejection cannot be maintained. Withdrawal of the rejection is respectfully requested.

V. Rejection of Claim 8-10 under 35 USC 103

Claims 8-10 were rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,541,800 (Barnett) in view of Luxeon Power Light Sources Literature in

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further view of US Patent No. 6,547,423 (Marshall). The Examiner has stated that Barnett discloses a lighting assembly including a light emitting diode package, a mounting device and a lens and that although Barnett does not teach the LED having a heat transfer plate on the rear of the mounting base and the mounting device in thermal communication with the heat transfer plate, Luxeon teaches a heat transfer plate on the rear of the LED and a printed circuit board that acts as a heat sink interface and that Marshall provides the necessary disclosure related to the optical lens limitation and that the present invention would be obvious in light of the combination of these references.

In applying the cited reference, the distinct and separately claimed elements of the present invention have been blurred and discrete elements regarding either the heat sink and/or the LED package have been transposed in order to apply the rejection. The claims of the present invention require three separate and distinct sub-assemblies. The first sub-assembly is an LED package. This LED package, which may be a Luxeon emitter, includes a mounting base with a front luminescent portion and a heat transfer plate on the rear thereof. The second sub-assembly is a heat sink. The heat sink includes an alignment guide for receiving and aligning the LED package as well as providing heat transfer capacity. The third sub-assembly is a separate and distinct lens that is placed in front of and in addition to the luminescent portion of the LED package.

The primary reference, Barnett has no disclosure at all related to heat transfer from the disclosed LED package. The structures illustrated in Fig. 1B of the Barnett reference show a completed LED package 10 that is installed into a socket assembly for mounting the LED package onto a circuit board. There is simply no disclosure relative to dissipation of heat. Additionally, the only optical element discussed in Barnett is the front luminescent portion of the LED. There is no provision for a secondary optical element that is utilized in conjunction with the luminescent portion of the LED package.

Further, while Luxeon discloses the heat transfer plate and the incorporation of a printed circuit board that acts as a thermal heat sink interface, this interface is not a heat sink. The Luxeon literature as provided by the Examiner specifically states that the printed circuit board is not a heat sink and that in order to light the LED, for more than a

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few seconds, an additional heat sinking means must be provided. While Luxeon provides a high powered LED package, they fully admit that the LED does not include adequate means for dissipating heat, yet do not provide any solution other than a statement that additional heat sinking is required. Therefore even of these two references are combine they are lacking in any disclosure that is directed to any of the claimed limitations regarding the heat sink assembly having an interior die that includes alignment means for receiving the LED package and simultaneously aligning the LED with the heat sink assembly. Simply looking at the figures of the Barnett reference without reading the disclosure is not sufficient to maintain this rejection. While Barnett shows a port for receiving the cathode of the LED there is no disclosure relative to a heat sink assembly or that allows any of the structure behind the LED cup to function as a heat sink. Simply combining the Luxeon reference with the Barnett reference would result in the heat transfer [plate on the rear of the Luxeon emitter to be received in a position adjacent the cathode receptacle 60. In this configuration, no additional heat sink capacity is provided and the Luxeon assembly would fail after a few seconds of illumination.

The simple addition of the Marshall reference for a lens does not serve to overcome the above identified deficiencies.

Accordingly, this rejection cannot be maintained. Withdrawal of the rejection is respectfully requested.

VI. Rejection of Claim 11 under 35 USC 103

Claim 11 was rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,541,800 (Barnett) in view of Luxeon Power Light Sources Literature and US Patent No. 6,547,423 (Marshall) in further view of admitted prior art. The Examiner stated that Barnett, Marshall and Luxeon disclose the present invention except for a circuit board including control circuitry and that the admitted prior art disclosed the

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necessary circuit board and control circuitry and that therefore the present invention would be obvious.

As stated above however with regard to Barnet, Marshall and Luxeon, this combination is lacking in critical structural limitations that are in the present invention as claimed. Specifically, since the base combination is lacking in the necessary auxiliary heat sink capacity with alignment means for receiving and aligning the LED package. Accordingly, this rejection cannot be maintained. Withdrawal of the rejection is respectfully requested.

VII. Rejection of Claim 12 under 35 USC 103

Claim 4 was rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,541,800 (Barnett) in view of Luxeon Power Light Sources Literature and US Patent No. 6,547,423 (Marshall) in further view of US Patent No. 6,582,100 (Hochstein). The Examiner stated that Barnett, Marshall and Luxeon disclose the present invention except for a the first LED lead in contact with the mounting die and the second LED lead in contact with the control circuitry and that Hochstein provides disclosure relative to the LED connectivity and that therefore the present invention would be obvious.

As stated above however with regard to Barnet, Marshall and Luxeon, this combination is lacking in critical structural limitations that are in the present invention as claimed. Specifically, since the base combination is lacking in the necessary auxiliary heat sink capacity with alignment means for receiving and aligning the LED package. Accordingly, this rejection cannot be maintained. Withdrawal of the rejection is respectfully requested.

VIII. Rejection of Claims 13-15 under 35 USC 103

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Claims 13-15 were rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,541,800 (Barnett) in view of US Patent No. 6,582,100 (Hochstein) in further view of US Patent No. 6,547,423 (Marshall). The Examiner stated that Barnett discloses the present invention except for a an LED package with a heat transfer plate on the rear thereof and an optical lens having a total internal reflection collector portion, that Hochstein discloses an LED mounting system with a heat dissipation assembly coupled to the rear of an LED package and that Marshall provides the required optical lens and that therefore the present invention would be obvious.

The present application clearly defines the mounting die as a heat sink. The heat sink has an alignment guide in the rear surface thereof and an aperture extending from the alignment guide to the front surface of the heat sink. A spreader plate serves then to bridge from the heat transfer plate on the rear of the LED package to the heat sink thereby providing a thermal transfer path from the heat transfer plate to the heat sink.

In contrast, the structure in Hochstein provides for the LED to be mounted directly onto the heat sink plate with a retention clip that snaps over the LED package and retains it on the heat sink plate. The Hochstein device does not include an alignment guide to align the LED with a longitudinal axis of the heat sink, it only includes an aperture for the luminescent portion of the LED. Further, the retainer clip in Hochstein is simply not the same structure and does not serve the same purpose as the heat sink in the present invention. In Hochstein, the heat is transferred directly from the transfer plate on the LED packaged and into the heat sink plate behind the circuit board. The retainer clip while retaining the LED package in contact with the heat sink does not have any significant thermal mass and does not serve to provide any heat sinking capacity.

The present invention includes a heat sink structure into which the LED package is received. A spreader plate is provided to transfer the heat from the heat transfer plate on the rear of the LED package to the heat sink mass that is adjacent and surrounding the sides of the LED package. Further, the heat sink includes both an alignment guide

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and an aperture that aligns the central axis of the LED package with a longitudinal axis of the heat sink.

The cited references do not alone or in combination teach or suggest the use of a spreader plate to transfer heat from the LED package to heat sink capacity that surrounds the LED package. Just as above with regard to Barnett in view of Luxeon, there is no means for transferring the heat from the LED package to the auxiliary heat sinking capacity. Since, the present invention clearly includes limitations that are not taught in the prior art, the cited references cannot render the claimed subject matter obvious. Further, since the base independent claim 13 includes subject matter that is not disclosed in the cited references, the dependent claims 14 and 15 are also believed to be allowable. Accordingly, this rejection cannot be maintained in view of the Applicant's amendments to the claims. Withdrawal of the rejection is respectfully requested.

IX. Conclusion

Accordingly, claims 1-15 are believed to be in condition for allowance and the application ready for issue.

Corresponding action is respectfully solicited.

PTO is authorized to charge any additional fees incurred as a result of the filing hereof or credit any overpayment to our account #02-0900.

Respectfully submitted,



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